



# Pediatric Feeding and Dysphagia Newsletter

Dear Fellow feeders:

Welcome to our first email edition of the newsletter! Thank you to those returning subscribers and welcome to our new ones. In this issue we focus on; transitioning past a suckle pattern (a place many of our clients get stuck in!), an interesting approach to feeding intervention from Clinic 4kidz, a conference highlight, an evaluation checklist, and our regular features of a case and new research.

Apologies to those who have tried to access the website, [www.feedingnews.com](http://www.feedingnews.com), our site is under construction. As always please email questions, suggestions, topic requests, and concerns to [feeding-news@earthlink.net](mailto:feeding-news@earthlink.net). We love to hear from you,

Krisi Brackett MS SLP/CCC

## Transitioning past a suckle oral transport pattern

By Cathy Fox MS OT/L & Krisi Brackett MS SLP/CCC

Children with feeding problems often get stuck in the suckle oral transport pattern and have difficulty advancing to higher level oral skills. The suckle is a normal transitional pattern that emerges as a child transitions from lower to higher level oral skills. It is important to determine what is blocking the child from advancing to the next skill level.

We must first understand more about the suckle pattern. This pattern is described as an anterior-posterior lingual and mandibular movement which is used to transport a bolus through the oropharyngeal cavity. It is the pattern that is effective when there is structural instability and neurologic immaturity. This pattern reappears multiple times during oral skill development as new skills emerge, the suckle pattern will reappear until the new skill fully emerges and becomes stable and refined.

Infants are born with compact, stable structures that are reinforced by flexor tone. As the infant develops, extension increases

**Pediatric Feeding and Dysphagia Newsletter**  
Hiro Publishing  
[www.feedingnews.com](http://www.feedingnews.com)

Volume 7, number 1

### Special Points of Interest:

- ☉ Current information
- ☉ New products
- ☉ Research and publications
- ☉ Education
- ☉

Editorial assistance provided by Elizabeth Crais Ph.D. CCC SLP, Division of Speech and Hearing Sciences, UNC-Chapel Hill and Cathy Fox MS OTR/L, Private Practice, Frederick, MD

### Inside this issue:

Transitioning past a suckle	1-2 6-7
Clinic 4kidz	3-5
Conference highlight	5
Feeding eval check-list...	7
Case by Case	8-9
On the Research Front	10

(Continued on page 2)

# Transitioning past a suckle oral transport pattern

By Cathy Fox MS OT/L & Krisi Brackett MS SLP/CCC

---

*(Continued from page 1)*

through the neck and upper spine, resulting in decreased structural stability of the jaw and tongue. The infant sucking pattern loses some structural stability which results in the infant using the suckling pattern to continue to function and increase the positive practice of this movement pattern, while integrating the increased extensor tone. As flexor tone develops, it balances the existing extensor tone, allowing the development of control, stability, and refinement for return to the sucking pattern. The suckle pattern provides a transitional pattern between old and new skills. With positive practice the pattern becomes stable, it strengthens and is refined.

Another example of this occurs when the infant is learning to accept food from a spoon. The infant may have a sucking pattern on the nipple but they have to learn how to stabilize on the spoon. To do this the infant reverts to the suckle transport pattern until they learn how to stabilize the jaw while mobilizing the tongue during a single bolus transport pattern. This allows the child to continue to be functional. Similarly, this motor pattern emerges again when the infant transitions from a bottle to a cup.

There are many factors that can destabilize or alter the length tension relationship of structures along the entire course of the swallowing mechanism. Such changes result as compensatory responses to complete the swallowing processes safely. These changes are not intended to remain indefinitely and if unresolved can result in a patient getting "stuck" in a compensatory pattern. It is critical to understand this fact because changing this pattern must include minimizing the impact of the initial cause of the compensation. These factors can come from external and internal sources but they have a significant effect on the ability to use the aerodigestive system effectively. This may include change in the alignment of the oropharyngeal motor structures, ventilatory pattern and changes in the pressure gradient between the thoracic and abdominal cavity. With any one change there is impact on the structural alignment of swallowing, breathing and of course coordination with swallowing, and changes in forces within the thoracic cavity and esophagus that can increase gastroesophageal reflux.

Reflux or motility along the aerodigestive tract is also a major internal factor that has well established impact on "supra-esophageal" function. The body goes to great length to protect the airway from the threat of reflux. Scientific studies have now documented the body's hard wired protective response to acid in the esophagus that results in increased tone in the upper esophageal sphincter, larynx, and posterior pharyngeal wall, all in an effort to protect the airway. The length - tension ratio of structures within the swallowing mechanism can be

*(Continued on page 6)*

# ***Clinic 4 Kidz: An Evaluation of a Home-Based Pediatric Feeding Disorders Program***

---

Address: P.O. Box 82275  
Austin, TX 78708  
Phone: (512) 246-8166  
Fax: (512) 246-8105  
Website: www.clinic4kidz.com

Executive Director: Meeta R. Patel, Ph.D., BCBA

Lead Clinicians: Angela E. Pruett, BA; Jennifer L. King, MA; BCBA; Kenneth R. Macaleese, MA; BCBA

## **PROGRAM OVERVIEW**

**“ Treatment is provided in the child’s natural environment .”**

Clinic 4 Kidz provides intensive services for children birth to 12 years of age. Diagnoses include (but are not limited to) failure to thrive, developmental disabilities, prematurity, gastroesophageal reflux, and other gastrointestinal problems. Treatment is provided in the child’s natural environment (e.g., home, school, restaurants etc.). Our clinicians travel all over the country to provide state of the art treatment to children with a variety of difficulties. We are committed to providing individualized treatments using Applied Behavior Analysis (ABA). Our program also provides an interdisciplinary approach to treating young children. We work very closely with physicians, speech therapists, occupational therapists, nutritionists, and special educators.

The primary goal of our treatment program is to establish appropriate behaviors that can be maintained in the absence of our clinicians. Therefore, caregiver training is an ongoing process in the program. Specific behaviors are taught across multiple clinicians, family members, and settings to ensure generalization and maintenance of skills.

## **STRUCTURE OF THE PROGRAM**

Initial Evaluation- An evaluation will be conducted before treatment is initiated. The evaluation will be conducted in the child’s home environment. This process allows us to determine whether our services are appropriate for your child. Prior to the evaluation the family will send all of their child’s medical/school records for our review. The actual evaluation is 2-3 hours in length. During the evaluation we will obtain a medical history, observe the child and family interactions during mealtime, assess the child’s oral motor skills, obtain nutritional information, and assess the family’s ability to participate in the program.

Intensive Treatment- Intensive treatment is designed for children who need daily or weekly intensive therapy for their feeding difficulties. These services are currently provided all over **California, Penn-**

*(Continued on page 4)*

# **Clinic 4 Kidz: An Evaluation of a Home-Based Pediatric Feeding Disorders Program**

*(Continued from page 3)*

**sylvania, New York, New Jersey, and Texas.** We may also provide these services in other states if there is a need. The initial treatment visit may consist of a 3-5 day visit where a clinician comes to the home and develops a treatment plan and then trains all caregivers to implement the treatment plan. Our clinician will first evaluate the treatment plan before caregivers are introduced to mealtime. The clinician will work with the child from 7:00 am to 7:00 pm, depending on the child's schedule. Individualized treatment plans are developed to increase oral intake, volume of foods/liquids consumed, variety/texture of foods consumed, increase oral motor skills as it relates to eating/drinking, decrease inappropriate mealtime behaviors and tube feedings. Once an appropriate treatment plan has been developed all caregivers will be trained to implement the final treatment protocol with high integrity. After the 3-5 day initial treatment visit a clinician will conduct either daily or weekly treatment sessions to monitor progress. A lead clinician may conduct 1-2 meal sessions daily or weekly until all goals are achieved. This type of intensive treatment is generally initiated for 4-8 weeks depending on the child's needs. Thereafter, we will continue to monitor progress and advance the child's feeding skills in our consultation program. All treatment plans are discussed with the child's gastroenterologist, speech therapist, occupational therapist, and nutritionist.

Consultation Services- Consultation services are designed for children who need monthly services or is intended for families in areas in which services are not readily available. We provide consultation services to families all over the United States and other countries. A lead clinician will travel to the child's home to provide treatment. The treatment model for consultation services is similar to the intensive treatment program; however treatment sessions may only be conducted on a monthly basis after the initial 3-5 day treatment visit. Patients who have been through our intensive treatment program may also be seen in this program for follow-up.

## **ADMISSIONS PROCESS**

All patients who are admitted to either the Intensive Treatment Program or Consultation Program must be evaluated by Dr. Patel or a Lead Clinician. Prior to the evaluation, the family must obtain a referral from a physician. Once a referral has been obtained, the patient will be scheduled for an evaluation.

## **COST**

The cost for our services is generally \$170.00 per hour. We do not take direct third party payment; however families have been successful with getting reimbursed for our services. Major insurance companies have paid for our services.

## **CAREGIVER INVOLVEMENT**

Caregiver training and participation is the most critical compo-



*(Continued on page 5)*

## ***Clinic 4 Kidz: An Evaluation of a Home-Based Pediatric Feeding Disorders Program***

ment of the program. Patients have only shown success in our program when caregivers have implemented our recommendations with high integrity. Our program is only intended for families who are able to follow the treatment plan in our absence. Families must be ready to conduct at least 5 structured meals per day using a structured protocol.

### **OUTCOME**

Clinic 4 Kidz achieves a high degree of success with its patients. About 80% of our patients meet their initial goal (e.g., increase variety, decrease tube dependence, decrease bottle dependence etc.) during the 3-5 day visit. The majority of patients maintain their gains and continue to improve during follow-up. In addition, 100% of our caregivers are trained to implement the treatment protocol with high integrity in our absence. Our program may be effective because all of the treatment is being initiated in the child's home under a regular home routine. Please see testimonials on the website to read what other parents have to say about our program.

### **FOLLOW-UP**

We provide follow-up services for children until they are eating age-typical meals. Sometimes these gains are achieved in a matter of months and other children may need more regular follow-up.

### **Check out this interesting feeding conference:**

**Pediatric Dysphagia Series: Exploring the Brain-Gut Feeding Connection**

**Date(s):** September 29-30, 2006

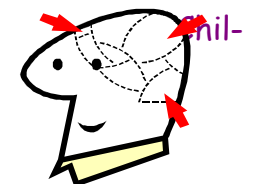
**Type:** Conference

**Location:** Marriott Kingsgate Conference Center, Cincinnati, OH

**Contact:** For more information or to register, please contact the Cincinnati Children's Continuing Medical Education office, 513-636-6732.

**Sponsor:** Cincinnati Children's Hospital Medical Center

<http://www.cincinnatichildrens.org/about/events/conference/pediatric-dysphagia.htm>



**CHECK  
THIS OUT!**

# Transitioning past a suckle oral transport pattern

By Cathy Fox MS OT/L & Krisi Brackett MS SLP/CCC

---

dramatically altered, frequently resulting in a compensatory pattern that is more immature and midline but more stable and effective. Swallowing is possible under these situations but often with smaller boluses using a suckle transport pattern. Once the factors change, the influence is reduced and the compensatory pattern is able to evolve into a mature pattern.

Many children experience medical and biomechanical alignment issues that cause them to shift into compensatory patterns. Often these patterns are not recognized because kids "grow out" of behaviors and patterns. However, when the underlying problems are not correctly identified and eliminated, kids get stuck in compensatory patterns and do not get the practice, mobilization, sensory input and developmental sequencing of motor patterns that are needed for higher level skills. One of the biggest problems is the failure to look deeply enough into the underlying issues. This means that as clinicians treating children with feeding problems, we must look at the system beginning to end. The aerodigestive tract starts at the mouth and ends at the anus and it interacts with the respiratory, endocrine, motor, and sensory systems etc to determine where the issues are that affect the feeding process and how to prioritize which to address first.

Unfortunately many kids get stuck in the suckle transport pattern and are unable to move on to more mature patterns without a lot of help. Often this is due to the fact that the critical period for these skills have passed, which means that in order to change it there must be more of a cognitive effort. It is important to remember that a child's oral motor skill will never be greater than their cognitive level.

Before you can change any oral motor pattern or sensory response you must first understand the impact of maximizing GI motility and function, obtaining optimal biomechanical alignment of the pelvis, trunk, neck and head for optimal ventilatory mechanics and proper tension, length relationship of the swallowing mechanism. On this foundation and with consistent positive practice you have a chance to begin changing your patient's oral motor pattern.

A case example that illustrates the preceding discussion follows. Max, is a 15 month old who has been diagnosed with cerebral palsy, prematurity, hydrocephalus with VP shut x2 and GER. His parents wanted ideas specifically to move him up in texture to chewing. He is an oral feeder and his parents are proactive. They expressed a strong desire to get rid of the baby food and were slowly adding thicker textures to his smooth foods.

There were several factors slowing Max down with his oral skills. The big one- is his motor delay. He had just learned to crawl several weeks earlier, has difficulty sitting, weak trunk and poor upper extremity strength. The oral motor skills develop concurrently with the gross motor skills. Max had just learned to roll, a 4-5 month skill, his oral skills are following along

# Transitioning past a suckle oral transport pattern

By Cathy Fox MS OT/L & Krisi Brackett MS SLP/CCC

---

at the same rate. He is and suckling his liquids and purees and has severe oral hypersensitivity related to his untreated GER that causes him to vomit on any crumb of solid food. In addition, he has had several hospitalizations that slowed or even stopped his feeding practice. It is easy to see that there are persistent barriers (motor delays, GER) which perpetuates the practice of the immature suckling pattern. It is extremely difficult to change his oral motor pattern unless the barriers are fully removed and the pathway is clear for high frequency positive practice. This will allow him to gain momentum to progress to the next skill level.

Gastrointestinal problems such as gastroesophageal reflux and motility disorders causing irritation, pain, oral defensiveness and food refusal can also result in immature oral motor patterns often characterized by a suckle movement. Often children can be normal neurologically and developmentally yet fail to progress their skills due to the impact of pain and the abnormal heightened sensory feedback that can come from GER and other GI issues. It sounds like common sense to treat it first but if the child's behaviors do not correspond with treatment that is suppose to be working, talk to the doctor. Remember they see kids in clinic. As therapists, you see kids actually function and that is where the information lies.

Once you have all of the underlying issues well controlled, there are some options for decreasing the suckle pattern and moving toward a single bolus transport pattern, lateral tongue movement or pre-chewing skills. The goal is to move toward a pattern where the jaw is stable and the tongue moves separately with successful practice.

## FEEDING EVALUATION CHECKLIST: EVERYTHING YOU NEED FOR A SUCCESSFUL EVAL!

- HAND SANITIZER AND GLOVES, FLASH LIGHT, STETHOSCOPE
- ORAL MOTOR TOOLS: FLAVORED TONGUE DEPRESSORS, INFADENT, ARC PROBE, LINGUA STICKS
- FEEDING UTENSILS: MAROON SPOONS, HABERMAN FEEDER, PIGEON NIPPLE, CUT OUT CUP, OLD SASSY INFATRAINER, BLOWING TOYS, SLOW FLOW NIPPLE
- BUBBLES, MOTIVATIONAL TOYS
- PH PAPER
- THICKENED LIQUID, BABY FOODS, SOFT SOLIDS, LOLLIPOPS
- SMALL NUTRITION REFERENCE BOOK, GROWTH CHARTS, TAPE MEASURE AND SCALE

## Case by Case: A recent interesting evaluation and initial outcome...

### **Speech Pathology: Oral- Motor, Swallowing, & Feeding Evaluation**

Name: BT

DOB: 11/9/05, 7 months

#### **Medical Diagnosis:**

1. Pierre robin sequence
2. micronathia, sleep apnea, s/p tongue lip adhesion (at 4 months)
3. laryngomalacia , supraglottoplasty
4. laryngeal cleft (unrepaired, small type I)

#### **Medical History:**

**Birth History:** BT was the 4 lb, 9 oz. product of a 34 week gestation. She was in the hospital for 5 days and on O2 for one day. She had difficulty feeding with nasal regurgitation and poor weight gain.

**ENT/ Pulmonary History:** There is no history of pneumonia or bronchitis and she has had one ear infection. BT has a diagnosis of Pierre robin including a cleft palate, micronathia, laryngomalacia, and sleep apnea. She had a tongue lip adhesion at 4 months. She has inconsistent congestion.

**GI History:** BT has a history of GER, arching, and spitting. She has been on zantac, prevacid and raglan in the past. Currently, she spits up or vomits with every feed. She has 1 BM/day. Mom reported that medication decreased emesis but was stopped when BT was sick.

**Development History:** B T is alert and smiles. She had a MBSS at 4 months after her tongue lip adhesion that showed a risk for aspiration. Nectar thick liquids were recommended.

#### **Nutrition/ Growth history:**

Weight = 15.5 lbs. Length = 26 inches.

Noted paternal history of lactose intolerance as infants.

**Feeding History:** BT had a difficult time feeding initially. She was unable to breast feed and had difficulty gaining weight for the first few months. She received breast milk via bottle for 2 months. She was a slow feeder and had nasal regurgitation. Her cleft was identified at 2 months and she was switched to a mead Johnson bottle. A haberman was tried but did not work well. At 4 months, she was switched to a pigeon nipple and had a tongue lip adhesion places because of sleep apnea. Liquids were thickened from 4 -6 months. Baby food was started at 6 ½ months. Liquids were thinned again because of poor intake of thickened liquid.

**Current Feeding:** BT takes 6 oz of regular Cosco formula 4 times per day from a pigeon nipple that is cut without a valve. She has vomiting with each feed and occasional cough and congestion. She takes between 24 – 28 oz. per day. She also takes a variety of stage 2 baby food (about ¾ of a jar) once per day.

#### **Oral-Motor Exam:**

**Jaw (CNV):** WNL

**Facial (CNVII):** Observed symmetrical smile, opening, and closing of mouth.

**Lingual (CNXII):** midline in oral cavity.

**Palatal/laryngeal (CN IX, X, XI):** Cleft palate. Normal gag. Clear vocal quality.



## Case by Case: *A recent interesting evaluation and initial outcome...*

**Observation of eating:** Noted loud noisy breathing throughout assessment.

1. Mom fed using a cut pigeon nipple without a valve. She showed intermittent chomping with oral spill. She had poor interest in feeding initially. She turned away from the nipple.
2. A pigeon nipple with a valve was tried. She showed brief intermittent munch/sucking with better seal.
3. Stage I carrots were given via spoon. She opened for the spoon using a midline tongue pattern. She took 5 oz. of formula from the cut pigeon nipple without a valve. This time she used a more organized suck pattern with little oral spill and intermittent cough.

**Assessment:** BT is a 7 month old female with Pierre Robin sequence who presents with a moderate feeding disorder characterized by:

1. **Oral Motor:** Cleft palate and tongue lip adhesion. Intermittent suck/chomp pattern using a pigeon nipple that is cut without a valve.
2. **Swallowing:** Passed MBSS but considered at risk for aspiration. Intermittent cough with feeds. Recommendations were made for nectar thick liquid, however, family is not following these due to poor intake of thicker liquids.
3. **Respiration:** Sleep apnea and laryngomalacia.
4. **Gastrointestinal Issues:** History of GER, emesis/spitting with every feeding, family history of lactose intolerance.
5. **Motor:** Starting to sit independently and rolls.
6. **Nutrition:** followed by local MD.
7. **Behavior:** Demonstrates inconsistent feeding behaviors.

**Prognosis:** good for improving oral motor pattern and appropriate intake for weight gain and growth.

### **Recommendations:**

1. GI: Consider trial of Nestle Good start to determine if hydrolyzed whey protein reduces emesis. If not, talk with MD about starting acid blocker again.
2. Oral motor/swallowing: BT should use an uncut pigeon nipple with a valve or a haberman feeder to encourage more active oral motor movements. A cut compression bottle without a valve, such as she is using now, increases flow rate and risk of aspiration as well as decreasing need to suck because liquid will pour out. BT may benefit from a FEES (fiberoptic endoscopic evaluation of swallowing) to further evaluate swallowing function.
3. BT may benefit from a visit with a dietician to establish calorie/nutrient needs.

Feeding therapy 2X/month to improve oral feeding and ensure weight gain and growth.

Her Mother stated understanding of all recommendations.

**Outcome:** BT's mother called me a one week later and reported that the switch to Nestle Good Start formula resulted in a complete elimination of her vomiting. In another week she had successfully transitioned her to a regular pigeon nipple with the valve. Feeding intervention will be started to help with continued feeding success. A FEES study has been scheduled.

© all rights reserved.

Hiro Publishing  
3106 Lincoln Street  
Salt Lake City, UT 84106  
www.feedingnews.com  
phone: 801-599-8250  
Email: feedingnews@earthlink.net

**Special for Feeding Therapists and Professionals!**

*This material is provided for informational and educational purposes only; it does not contain specific medical advice. If you have specific health questions or problems, consult a health care professional for personal medical advice.*



---

## On the Research Front:

Scarborough DR, Boyce S, McCain G, Oppenheimer S, August A, Strinjas JN, [Abnormal physiological responses to touch among children with persistent feeding difficulties.](#) *Dev Med Child Neurol*, 2006: 48;6, 460-4 .

This study aims at providing a possible explanation for gagging or significant behavior state changes as a result of touch to oral and body regions of children with feeding problems. The study compares the responses to firm tactile pressure of 40 children between the ages of 3 and 18 months. The experimental group consisted of 20 children (12 males, 8 females) with heterogeneous medical diagnoses, at least 2 weeks of alternative feedings during the first 3 months of life, and a common history of persistent feeding difficulties. The comparison group consisted of 20 children with an unremarkable medical history matched by age and sex to the experimental group. Firm, tactile pressure was applied in a predetermined sequence following dermatome regions from legs to mouth. Response was recorded in terms of presence/absence of gagging and/or behavior state changes. Fifteen of the 20 children in the experimental group showed gagging (14) or inconsolable crying (1) in response to touch. None of the matched comparison group demonstrated either gagging or behavior state changes. The experimental and comparison groups showed significant differences in response to tactile input. Further, the source of these abnormal responses must be sought in similarity of experience across heterogeneous medical diagnoses and interventions. One possible explanation is a history of oral deprivation due to alternative feedings.

Rommel N, Dejaeger E, Bellon E, Smet M, Veereman-Wauters G, [Videomanometry reveals clinically relevant parameters of swallowing in children.](#) *Int J Pediatr Otorhinolaryngol*, 2006: Aug;70(8):1397-405.

The aim of this pilot study is to demonstrate the technical and clinical feasibility of videomanometry to assess swallowing in infants and young children presenting with dysphagia. Placement and fixation of the catheter was well tolerated and no adverse effects occurred. The children easily swallowed test boluses as selected during clinical examination. Results indicate that pharyngeal contractility can be evaluated as well as relaxation of the upper esophageal sphincter during swallowing of wet boluses. Videomanometry in young children is feasible with the limited discomfort of the placement of the catheter. It is a promising technique that will allow more accurate assessment of pediatric oropharyngeal dysphagia.